

Serial No. 10/063,962  
Docket No. 13DV-13657  
Amendment dated January 4, 2006  
Reply to Office Action of November 4, 2005

### **Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims:**

Claim 1 (Currently amended): A component having a coating on a surface thereof, the coating consisting essentially of zirconia partially stabilized by up to about 10 weight percent yttria and to which is alloyed an oxide additive of only tantalum in an amount of about 0.5 to about 8 weight percent, ~~at least one oxide additive chosen from the group consisting of lanthana, neodymia, and tantalum for a combined maximum of about 10 weight percent of the at least one oxide additive~~, the ~~at least one~~ oxide additive being uniformly incorporated atom-by-atom throughout the coating, ~~the at least one oxide being:~~

———— ~~tantalum only, wherein the tantalum content of the coating is about 10 weight percent maximum; or~~

———— ~~lanthana only, wherein the lanthana content of the coating is about 4 weight percent maximum; or~~

———— ~~a combination of tantalum and lanthana only, wherein the tantalum content of the coating is 10 weight percent maximum and the lanthana content~~

Serial No. 10/063,962  
Docket No. 13DV-13657  
Amendment dated January 4, 2006  
Reply to Office Action of November 4, 2005

~~of the coating is about 4 weight percent maximum; or~~

~~———— a combination of tantalum and neodymium only, wherein the tantalum~~

~~content of the coating is about 10 weight percent maximum and the neodymium~~

~~content of the coating is 0.6 weight percent maximum; or~~

~~———— a combination of lanthanum and neodymium only, wherein the lanthanum~~

~~content of the coating is 1.0 weight percent maximum or the neodymium content~~

~~of the coating is 0.6 weight percent maximum; or~~

~~———— a combination of tantalum, lanthanum, and neodymium, wherein the tantalum~~

~~content of the coating is 10 weight percent maximum and either the lanthanum~~

~~content of the coating is 1.0 weight percent maximum or the neodymium content~~

~~of the coating is 0.6 weight percent maximum.~~

Claims 2-8 (Canceled)

Claim 9 (Currently amended): A component according to claim 1,  
wherein the coating consists of zirconia, yttria, and the ~~at least one~~ oxide  
additive.

Claim 10 (Original): A component according to claim 1, wherein the  
zirconia is partially stabilized by about one to about four weight percent yttria.

Serial No. 10/063,962  
Docket No. 13DV-13657  
Amendment dated January 4, 2006  
Reply to Office Action of November 4, 2005

Claim 11 (Original): A component according to claim 1, further comprising a metallic bond coat adhering the coating to the component.

Claim 12 (Original): A component according to claim 11, wherein the metallic bond coat is a diffusion platinum aluminide.

Claim 13 (Original): A component according to claim 1, wherein the component is a superalloy airfoil component of a gas turbine engine.

Claim 14 (Currently amended): A gas turbine engine component comprising:

- a superalloy substrate;
- a metallic bond coat on a surface of the substrate; and
- a thermal barrier coating having a columnar microstructure, the thermal barrier coating consisting essentially of zirconia partially stabilized by about one to about four weight percent yttria and in which is alloyed an oxide additive of only tantalum in an amount of about 0.5 to about 8 weight percent, -at least one oxide additive chosen from the group consisting of lanthana, neodymia, and tantalum for a combined maximum of about 10 weight percent of the at least one oxide additive, the -at least one oxide additive being uniformly

Serial No. 10/063,962  
Docket No. 13DV-13657  
Amendment dated January 4, 2006  
Reply to Office Action of November 4, 2005

incorporated atom-by-atom throughout the coating. ~~coating, the at least one oxide being:~~

~~—————tantalum only, wherein the tantalum content of the coating is about 10 weight percent maximum; or~~

~~—————lanthanum only, wherein the lanthanum content of the coating is about 4 weight percent maximum; or~~

~~—————a combination of tantalum and lanthanum only, wherein the tantalum content of the coating is 10 weight percent maximum and the lanthanum content of the coating is about 4 weight percent maximum; or~~

~~—————a combination of tantalum and neodymium only, wherein the tantalum content of the coating is about 10 weight percent maximum and the neodymium content of the coating is 0.6 weight percent maximum; or~~

~~—————a combination of lanthanum and neodymium only, wherein the lanthanum content of the coating is 1.0 weight percent maximum or the neodymium content of the coating is 0.6 weight percent maximum; or~~

~~—————a combination of tantalum, lanthanum, and neodymium, wherein the tantalum content of the coating is 10 weight percent maximum and either the lanthanum content of the coating is 1.0 weight percent maximum or the neodymium content of the coating is 0.6 weight percent maximum.~~

Serial No. 10/063,962  
Docket No. 13DV-13657  
Amendment dated January 4, 2006  
Reply to Office Action of November 4, 2005

Claims 15-18 (Canceled)

Claim 19 (Original): A gas turbine engine component according to claim 14, wherein the metallic bond coat is a diffusion platinum aluminide.

Claim 20 (Original): A gas turbine engine component according to claim 14, wherein the component is an airfoil component.